modeling in cost-based physician profiling. Here, we examine a refined modeling approach and the use of physician quality score. **METHODS:** Symmetry's Episode Treatment Groups (ETG)TM software was employed to group 2 years of commercial claims for 1 million members and 6,000 physicians into episodes. Our previous method used more than 200 ETG-level Gamma regressions to generate expected costs for each care episode, which were then used to calculate the standardized cost difference (SCD) in an effort to characterize physician practice efficiency. In this approach, we refined our method by conducting one Gamma regression model for all episodes across all ETG types, which enabled us to estimate physicians' relative performance more consistently and efficiently based on the inclusion of physician-specific intercepts. Regression models controlled for patient demographic, health status, and disease severity characteristics as well as physician quality score to control for the marginal cost incurred for the provision of evidence-based care (i.e., tests, screenings). The weighted kappa score was calculated to assess agreement between the two approaches. **RESULTS:** The weighted kappa between physician rankings from the intercept model and SCD approach was 0.90, suggesting that the two methods generated similar physician practice efficiency scores. Physician quality played a significant role across all specialties (higher quality was associated with 12% higher cost, p-value < 0.0001), but differed with regard to certain specialties (higher quality was associated with 15% lower costs for internal medicine, p-value = 0.003), which could have been indicative of downstream costs that were avoided due to improved quality of care. **CONCLUSION:** A regression approach with physician-specific intercepts that controls for a comprehensive set of patient factors and physician quality score produces more consistent and efficient estimates of physician cost and is more congruent with the goals of quality measurement.

PHP28

DEVELOPMENT OF THE CAT-HEALTH SYSTEM: THE FIRST COMPUTER-ADAPTIVE TESTING SYSTEM IN SPAIN FOR EVALUATING THE HEALTH RELATED QUALITY OF LIFE OF ILL OR HEALTHY GENERAL POPULATION SUBJECTS

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OBJECTIVES: Computer Adaptive Testing (CAT) are assessment instruments based on the Item Response Theory. CAT use a reduced number of questions (selected from a calibrate item-bank) in evaluating the subject with a minimum error. These are characteristics which would be very useful in the Health-Related Quality of Life-HRQoL area. The purpose of the present work was to develop a calibrated bank of HRQoL items to used it in the to construction of a CAT for evaluating the generic HRQoL in our country: the CAT-Health. **METHODS:** HRQoL was considered as an unidimensional construct. An expert panel constructed the item bank with items from validated HRQoL questionnaires and original ones, all with a likert scale of five alternatives. A pilot group was interviewed with all these items to evaluate parameters of Classic and Item Response Theories and select the anchoring items. A normative group answered part of the items (through a computer application or in paper) and items were re-calibrated (using Samejima's Graded Response Model-GRM) and norms of item selection were designed. Various simulation studies were carried-out with the final calibrated bank of HRQoL items. **RESULTS:** Experts panel constructed a bank of 140 HRQoL items. Pilot group (N = 185) answered all the items: 12 items were eliminated because homogeneity coefficient was under 0.20; Cronbach's alpha was 0.99; factorial analysis confirmed the uni-dimensionality of the item bank; IRT showed that 23 items had a "b" parameter which did not fit the model (eliminated). Normative group (N = 1.373) answered 10 different questionnaires (5 anchoring items and 10 different) constructed with the 105 items remaining in the bank: Information function indicated that 9 items must be eliminated; GRM was applied to re-calibrate the items. Finally, norms of item selection were designed and simulations were carried-out. **CONCLUSION:** A new CAT to evaluate generic HRQoL has been developed and tested through simulation techniques.

PHP29

THE RELATIONSHIP BETWEEN PHYSICIAN EMPATHY AND SATISFACTION WITH PRIMARY CARE PHYSICIANS: FINDINGS FROM AN INTERNET BASED SURVEY

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OBJECTIVES: This study examined patent's satisfaction with their physician. Patient satisfaction is a quality measure that affects treatment outcomes. More specifically it examines how perceived patients' perceptions of empathy from a physician affect patient satisfaction. **METHODS:** A cross-sectional Internet-based survey completed by patients visiting primary care physician offices resulted in a convenience sample of 20,901 patient respondents who rated their recent visit to a physician through a web-based survey. The survey included questions based on aspects of overall satisfaction with the physician care and office practice and more detailed items including demographics such as "friendliness", empathy and time spent with doctor as well as areas that could be improved. These scales were then used to represent patient satisfaction. How "friendliness and caring" the physician was perceived to be was used as a measure of perceived empathy. **RESULTS:** Of the 20,901 patients surveyed from the online survey perceived empathy was the most strongly predominant correlate associated with patient satisfaction with their physician was that of empathy with a partial correlation of 0.87 ($p < 0.001$) and a Pearson correlation of 0.92 ($p < 0.001$). Patient satisfaction with the office setting was also highly correlated with empathy scores with a partial correlation of 0.72 ($p < 0.001$) and a Pearson correlation of 0.83 ($p < 0.001$). Other factors such as waiting time and problems with appointments, staff, records, parking doctor care, and ways of obtaining information also played a role in how the patients' perceived their overall satisfaction with the physician. **CONCLUSION:** The patient satisfaction ratings are strongly correlated to patient perception of empathy.

PHP30

HEALTH OUTCOMES AMONG INDIVIDUALS WITH AND WITHOUT HEALTH INSURANCE IN THE UNITED KINGDOM: RESULTS OF A MATCHED SAMPLE ANALYSIS OF A RETROSPECTIVE DATABASE

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OBJECTIVES: To identify and describe differences in demographics, quality of life, resource utilization, and health status between those with and without private health insurance in the UK. **METHODS:** Data for this analysis were obtained from the 2006 National Health and Wellness Survey (NHWS), an annual nationally representative Internet-based study of the health status, health care attitudes, behaviors, and outcomes of adults

(age 18+). The current analysis was limited to respondents from the UK. Individuals who reported having private health insurance were 1:1 matched with those who did not on age, gender and highest education level attained (college graduate vs. no college). Paired t-tests were conducted to assess if any differences existed for continuous variables. For dichotomous variables, odds ratios were calculated to determine the likelihood of an individual with health insurance experiencing comorbidities compared to those without health insurance, and significant differences were tested using McNemar's chi-square. **RESULTS:** Of the 1944 respondents with private health insurance, 1925 were matched to controls without health insurance yielding a 99% match. Cases were generally healthier than controls. Cases had higher SF-8 physical summary scores (49.73 vs 47.79, $p < 0.001$) and SF-8 mental summary scores (49.72 vs 48.39, $p < 0.001$) than controls. Cases had a significantly decreased likelihood of experiencing angina, COPD, heart attacks, over-active bladder, abdominal bloating, anxiety, emphysema, depression, generalized anxiety disorder, pain, panic disorder and social anxiety disorder. Cases experienced less activity impairment than controls as measured by the Work Productivity and Activity Impairment (WPAI) Questionnaire (19.18% vs. 25.12%, $p < 0.001$). However, no significant differences were noted for resource utilization between those with and without private health insurance. **CONCLUSION:** Unique characteristics differentiate those with and without private health insurance in the UK. These differences have ramifications for health policy and health care spending.

PHP31

EUROPEAN PRICING AND REIMBURSEMENT UPDATE: OPTIMAL MONETARY BENEFITS CAN DEPEND ON WHICH COUNTRY THE PROCESS IS INITIATED

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OBJECTIVES: To demonstrate that in European pricing and reimbursement the benefits of the pharmaceutical industries can be optimised. **METHODS:** We have examined the reimbursement criteria and drug price establishments of 12 European countries: UK, The Netherlands, Germany, Sweden, Norway, Belgium, Italy, Spain, France, Austria, Denmark and Switzerland. Reimbursement systems were compared across six key reimbursement criteria (clinical efficacy, cost effectiveness, budget impact, foreign price reference, public medical need, value of treatment) and classified into three categories whether a Cost Effectiveness Analysis (CEA) is mandatory, optional or absent. In parallel, two types of pricing system were identified: no pricing reference and reference pricing. We have developed a network model to demonstrate the relative monetary benefits resulting from the pricing and reimbursement systems behaviour. **RESULTS:** We found that majority of countries determine drug price before the reimbursement decision in order to perform a CEA. However in other countries where CEA are optional or absent, reimbursement decisions generally precede price negotiations. The most important aspect of pricing for all countries except Germany and UK is the price in other reference countries (e.g. the price in France is the average of Spain, Italy, Germany and UK drug prices). Therefore a higher price obtained in Spain could increase the French drug price. Other countries (like Belgium or Italy) set price according to specific country. Pragmatically each country has its own fixed budget allocated to different diseases; therefore a reimbursement and price determination across Europe should be approached strategically to optimise margins and benefits. **CONCLUSION:** The applications of CEA for decision making have progressed in European countries constraining prices and costs to effectiveness. Nevertheless, in other countries drug prices are more sensitive to public health and are negotiated with public authorities. A European national pricing and reimbursement approach by disease network model could generate optimal monetary benefit for the pharmaceutical industry.

PHP32

OBTAINING VALUE FOR MONEY FROM PHARMACEUTICALS: REFERENCE PRICING OR HEALTH TECHNOLOGY ASSESSMENT?

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OBJECTIVES: The purpose of the study was to compare and contrast reference pricing with health technology assessment (HTA) as alternative strategies for obtaining value for money from pharmaceuticals. **METHODS:** The study focussed on decisions about the initial price and reimbursement status of innovative drugs. Four countries were studied: Germany, The Netherlands, Sweden and the UK. These countries have operated one, or both, of the two policies at certain points in time, sometimes in parallel. Drugs in four groups were considered: cholesterol-lowering agents, insulin analogues, biologics for rheumatoid arthritis and atypicals for schizophrenia. **RESULTS:** Where reference pricing schemes were in operation, all the drugs obtained reimbursement. In addition, all the drugs in the same group were placed in the same cluster. Prices were also similar, with the exception of cholesterol-lowering agents, where some generic agents were available. Where technology assessments had been performed, the use of some drugs (e.g. insulin analogues) was restricted more than the licensed indication. On occasions, technology assessments were used to assess whether a premium price was justified for a given product. **CONCLUSION:** Compared with HTA, reference pricing is a relatively blunt instrument for obtaining value for money from pharmaceuticals. It may have a role alongside HTA, in making reimbursement decisions about those drugs which, because of resource constraints, cannot be subjected to a technology assessment.

PHP33

RESULTS AND OUTCOMES OF NICE SINGLE TECHNOLOGY APPRAISALS

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OBJECTIVES: The new Single Technology Appraisal (STA) process introduced by NICE attempts to shorten the process of assessment. The purpose of this study was to review, summarise and critique all of the STAs published to date and to analyse themes and trends. **METHODS:** A database was developed to collate key data from the STAs completed to date with an initial focus on oncology submissions. Clinical and economic data as well as summaries of all key comments were extracted from the manufacturer submission, evidence review group report, expert submission and the final appraisal determination. Data were then analysed for associations between ICER values, clinical and economic evidence and submission outcome. **RESULTS:** Since the introduction of the STA process, six STAs have been completed for drugs in oncology. A further 27 STAs are in development, with 10 more in oncology. Three out of the six oncology submissions were considered to have resulted in positive guidance from NICE, recommending the use of the drug in the NHS.